JC10 Rec'd PCT/PTO 01 APR 2002

TRANSMITTAL LETTER OT THE UNITED STATES DESIGNATED/ELECTED OFFICE (DO/EO/US) CONCERNING A FILING UNDER 35 U.S.C. 371		Attorney Docket No. **2005-1001** U.S. Application No. 10/089460
INTERNATIONAL APPLN. NO. **PCT/EP00/09658**	INTERNATIONAL FILING DATE **October 2, 2000**	PRIORITY DATE CLAIMED **September 30, 1999**

TITLE OF INVENTION: **INTRALUMINAL DEVICE, COATING FOR SUCH DEVICE, AND METHOD FOR PREPARING SAID DEVICE**

APPLICANT(S) FOR DE/EO/US: **WILLEM JOHAN VAN DER GIESSEN AND HELENA M M VAN BEUSEKOM**

Applicant herewith submits to the United States Designated Elected Office (DO/EO/US) the following items and other information:

1. ☒ This is a FIRST submission of items concerning a filing under 35 U.S.C. 371.
2. ☐ This is a SECOND or SUBSEQUENT submission of items concerning a filing under 35 U.S.C. 371.
3. ☒ This is an express request to begin national examination procedures (35 U.S.C. 371(f)). The submission must include items (5), (6), (9) and (21) indicated below.
4. ☒ The US has been elected by the expiration of 19 months from the priority date (Article 31).
5. ☒ A copy of the International Application as filed (35 U.S.C. 371 (c)(2))
   - a. ☒ is attached hereto (required only if not communicated by the International Bureau)
   - b. ☐ has been communicated by the International Bureau. See attached PCT/IB/308.
   - c. ☐ is not required, as the application was filed in the United States Receiving Office (RO/US).
6. ☐ An English language translation of the International Application as filed (35 U.S.C. 371 (c)(2))
   - a. ☐ is attached hereto.
   - b. ☐ has been previously submitted under 35 U.S.C. 154(d)(4).
7. ☐ Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371 (c)(3))
   - a. ☐ are attached hereto (required only if not communicated by the International Bureau).
   - b. ☐ have been communicated by the International Bureau.
   - c. ☐ have not been made, however, the time limit for making such amendments has NOT expired.
   - d. ☐ have not been made and will not be made.
8. ☐ An English language translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371 (c)(3)).
9. ☒ An oath or declaration of the inventor(s) (35 U.S.C. 371(c)(4)).
10. ☐ An English language translation of the annexes of the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371(c)(5)).

Items 11 to 20 below concern document(s) or information included:

11. ☒ Information Disclosure Statement (IDS) w/PTO-1449 - ☐ Copy of IDS citations
12. ☒ Assignment Papers (cover sheet & document(s))
13. ☒ A FIRST Preliminary Amendment.
14. ☐ A SECOND or SUBSEQUENT Preliminary Amendment.
15. ☐ A substitute specification.
16. ☐ A change of power of attorney and/or address letter.
17. ☐ A computer-readable form of the sequence listing in accordance with PCT Rule
18. ☐ A second copy of the published international application under 35 U.S.C. 154(d)(4).
19. ☐ A second copy of the English language translation of the international application (35 U.S.C. 154(d)(4)).
20. ☒ Other items or information: **Application Data Sheet, Abstract of the Disclosure, International Search Report and PCT/IPEA/409**

U.S. APPLICATION NO. 10/089460	INTERNATIONAL APPLN. NO. PCT/EP00/09658	ATTORNEY DOCKET NO. 2005-1001

21. ☒ The following fees are submitted:	CALCULATIONS PTO USE ONLY	
BASIC NATIONAL FEE (37 CFR 1.492 (a) (1)-(5):		
Neither international preliminary examination fee nor international search fee paid to USPTO and international Search Report not prepared by the EPO or JPO $1040.00		
International preliminary examination fee not paid to USPTO but International Search Report prepared by the EPO or JPO $890.00		
International preliminary examination fee not paid to USPTO but International search fee paid to USPTO $740.00		
International preliminary examination fee paid to USPTO but all claims did not satisfy provision of PCT Article 33 (1)-(4) $710.00		
International preliminary examination fee paid to USPTO and all claims satisfied provision of PCT Article 33 (1)-(4) $100.00		
ENTER APPROPRIATE BASIC FEE AMOUNT	$ 890.00	
Surcharge of $130.00 for furnishing the oath or declaration later than ☐ 20- ☐ 30 months from the earliest claimed priority date (37 CFR 1.492(e))	$	

CLAIMS	NUMBER FILED	NUMBER EXTRA	RATE		
Total Claims	17 - 20 =	0	X $18.00	$ 0.00	
Independent Claims	1 - 3 =	0	X $84.00	$ 0.00	
MULTIPLE DEPEND CLAIM(S) (if applicable)			+ $280.00	$	
			TOTAL OF ABOVE CALCULATION -	$ **890.00**	
☐ Applicant claims small entity status. See 37 CFR 1.27. The fees indicated above are reduced by ½.			+	$	
			SUBTOTAL =	$ 890.00	
Processing fee of $130.00 for furnishing the English translation later than ☐ 20 ☐ 30 months from the earliest claimed priority date (37 CFR 1.492Z(f)).				$	
			TOTAL NATIONAL FEE =	$ 890.00	
Fee for recording the enclosed assigned (37 CFR 1.21(h)). The assignment must be accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31) $40.00 per property +				$ 40.00	
			TOTAL FEES ENCLOSED -	$ 930.00	
				Amount to be refunded:	$
				Charged:	$

☒ A Check in the amount of **$930.00** to cover all fees is attached.

☐ The Commissioner is hereby authorized to charge indicated fees and credit any overpayments to Deposit account No. 25-0120 in the name of Young & Thompson, as described below. A duplicate copy of this sheet is enclosed.

☒ The Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 25-0120 for any additional fee required under 37 C.F.R. §§ 1.16 or 1.17.

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00466
PATENT TRADEMARK OFFICE

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NAME

35,041
REGISTRATION NO.

PATENT
2005-1001

IN THE U.S. PATENT AND TRADEMARK OFFICE

In re application of: Willem Johan VAN DER GIESSEN et al.

Appl. No.:	**NEW**	Group:
Filed:	April 1, 2002	Examiner:
For:	INTRALUMINAL DEVICE, COATING FOR SUCH DEVICE, AND METHOD FOR PREPARING SAID DEVICE	

PRELIMINARY AMENDMENT

Assistant Commissioner for Patents
Washington, DC 20231

April 1, 2002

Sir:

The following preliminary amendments and remarks are respectfully submitted in connection with the above-identified application.

IN THE ABSTRACT OF THE DISCLOSURE:

Please replace the Abstract of the Disclosure with the rewritten Abstract of the Disclosure attached on a separate sheet attached hereto.

IN THE CLAIMS:

Please amend the claims as follows:

3. (Amended) Intraluminal device according to claim 1, characterised in that the coating comprises entactin and nidogen.

4. (Amended) Intraluminal device according to claim 1, characterised in that the coating furthermore comprises a growth factor.

6. (Amended) Intraluminal device according to claim 1, characterised in that the coating comprises an antibiotic.

8. (Amended) Intraluminal device according to claim 1, characterised in that the coating comprises vitronectine.

9. (Amended) Intraluminal device according to claim 1, characterised in that the coating comprises:

85-95% heparan sulfate;

5-6% laminin,;

3-4% type IV collagen;

0.5-1.5% entactin and nidogen;

0.001-1% growth factors;

0.001-1% antibiotic.

10. (Amended) Intraluminal device according to claim 1, characterised in that the prosthesis comprises a stent or a graft.

11. (Amended) Coating suitable for a intraluminal device according to claim 1.

12. (Amended) Method for preparing a intraluminal device according to claim 1, comprising the steps of:

- providing a intraluminal device for implantation in a body;
- preparing a composition, comprising, in about 50 mg/ml solvent:

50-97% heparan sulfate;

1-20% laminin;

0.2-15% type IV collagen;

the solvent being a suitable buffer or water;

- dipping the intraluminal device in the composition; and
- drying the dipped intraluminal device.

14. (Amended) Method according to claim 12, characterised in that the composition furthermore comprises a

growth factor, chosen from the group consisting of bFGF, IGF, TGF-β and VEGF.

15. (Amended) Method according to claim 12, characterised in that the composition comprises an antibiotic.

16. (Amended) Method according to claim 12, characterised in that the composition comprises vitronectin.

17. (Amended) Method according to claim 12, characterised in that the composition comprises:

85-95% heparan sulfate;

5-6% laminin;

3-4% type IV collagen;

0.5-1.5% entactin and nidogen;

0.001-1% growth factors;

0.001-1% antibiotic.

REMARKS

Claims 1-17 are pending in the present application.

Entry of the above amendments is earnestly solicited. An early and favorable first action on the merits is earnestly requested.

Should there be any matters that need to be resolved in the present application, the Examiner is respectfully requested to contact the undersigned at the telephone number listed below.

Attached hereto is a marked-up version of the changes made to the claims by the current amendment. The attached page is captioned "VERSION WITH MARKINGS TO SHOW CHANGES MADE."

The Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 25-0120 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17.

Respectfully submitted,

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BC/ma
Attachments

VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE ABSTRACT OF THE DISCLOSURE:

The Abstract of the Disclosure has been amended as follows:

Abstract of the Disclosure

Disclosed is an intraluminal device, suitable for implantation in a body. ~~Said~~The intraluminal device is provided with a coating which comprises: 50-97% heparan sulfate; 1-20% laminin; 0.2-15% type IV collagen. Furthermore a coating is disclosed, which coating is suitable for the above mentioned device, as well as a method for preparing such device, comprising the steps of: providing a intraluminal device for implantation in a body; preparing a composition, comprising, in about 50 mg/ml solvent: 50-97% heparan sulfate; 1-20% laminin; 0.2-15% type IV collagen; the solvent being a suitable buffer or water; dipping the intraluminal device in the composition; and drying the dipped intraluminal device.

IN THE CLAIMS:

The claims have been amended as follows:

3. (Amended) Intraluminal device according to claim 1~~ or 2~~, characterised in that the coating comprises entactin and nidogen.

4. (Amended) Intraluminal device according to claim 1~~-3~~, characterised in that the coating furthermore comprises a growth factor.

6. (Amended) Intraluminal device according ~~one or more of the preceding claims,~~to claim 1, characterised in that the coating comprises an antibiotic.

8. (Amended) Intraluminal device according to ~~one or more of the preceding claims,~~claim 1, characterised in that the coating comprises vitronectine.

9. (Amended) Intraluminal device according to ~~one or more of the preceding claims,~~claim 1, characterised in that the coating comprises:

85-95% heparan sulfate;

5-6% laminin,;

3-4% type IV collagen;

0.5-1.5% entactin and nidogen;

0.001-1% growth factors;

0.001-1% antibiotic.

10. (Amended) Intraluminal device according to ~~one or more of the preceding claims,~~claim 1, characterised in that the prosthesis comprises a stent or a graft.

11. (Amended) Coating suitable for a intraluminal device according to ~~one or more of the preceding claims 1-10.~~claim 1.

12. (Amended) Method for preparing a intraluminal device according to ~~one or more of the claims 1-10,~~claim 1, comprising the steps of:

- providing a intraluminal device for implantation in a body;

- preparing a composition, comprising, in about 50 mg/ml solvent:

50-97% heparan sulfate;

1-20% laminin;

0.2-15% type IV collagen;

the solvent being a suitable buffer or water;

- dipping the intraluminal device in the composition; and

- drying the dipped intraluminal device.

14. (Amended) Method according to claim 12~~ or 13~~, characterised in that the composition furthermore comprises a growth factor, chosen from the group consisting of bFGF, IGF, TGF-β and VEGF.

15. (Amended) Method according to ~~one or more of claims 12-14,~~ claim 12, characterised in that the composition comprises an antibiotic.

16. (Amended) Method according to ~~one or more of claims 12-15,~~ claim 12, characterised in that the composition comprises vitronectin.

17. (Amended) Method according to ~~one or more of the claims 12-16,~~ claim 12, characterised in that the composition comprises:

85-95% heparan sulfate;

5-6% laminin;

3-4% type IV collagen;

0.5-1.5% entactin and nidogen;

0.001-1% growth factors;

0.001-1% antibiotic.

Abstract of the Disclosure

Disclosed is an intraluminal device, suitable for implantation in a body. The intraluminal device is provided with a coating which comprises: 50-97% heparan sulfate; 1-20% laminin; 0.2-15% type IV collagen. Furthermore a coating is disclosed, which coating is suitable for the above mentioned device, as well as a method for preparing such device, comprising the steps of: providing a intraluminal device for implantation in a body; preparing a composition, comprising, in about 50 mg/ml solvent: 50-97% heparan sulfate; 1-20% laminin; 0.2-15% type IV collagen; the solvent being a suitable buffer or water; dipping the intraluminal device in the composition; and drying the dipped intraluminal device.

Intraluminal device, coating for such device, and method for preparing said device

The present invention relates to an intraluminal device, suitable for implantation in a body, which intraluminal device is provided with a coating.

Intraluminal devices of the above mentioned type are generally known and applied. Such devices are for example applied in the treatment of blood vessel blockage in which the blocked blood vessel first is dilated, followed by placing a vascular prosthesis, in particular a stent, in the blood vessel in order to keep the vessel in the dilated state. This treatment does, however, give rise to several problems with regard to the vascular healing, as the natural healing process after such an operation is not regulated and as a consequence thereof undesirable local thrombosis can take place.

After the above implantation, the intraluminal device interacts with the vesselwall surface and the bloodstream. In a clinical setting the endothelialization of the intraluminal device is generally complete within two to three months after implantation. During this period the patient is at risk of thrombotic occlusion, undesired tissue growth, inflammation and vascular dysfunction.

There are several techniques available for controlling the above undesired effects of intraluminal devices, such as for example vascular stents. Thrombosis can passively be prevented by creating an inert surface which improves the surface characteristics that influence thrombosis. Such characteristics comprise, for example, charge, wettability and topography.

Thrombosis can also be prevented by binding one or more active components which inhibit thrombosis to the stent surface in order to actively prevent thrombosis. Examples of such components are prostaglandins, heparins, other thrombin inhibitors, or enzymes such as adenosine phosphatase.

Furthermore, thrombosis can be controlled by mimicking at the stent surface an already completed thrombotic response. This can be achieved by coating the stent surface with

fibrin, thereby creating a controlled thrombus in vitro, as polymerized and stabilised fibrin is no longer thrombogenetic.

Thrombus formation can also be limited by disguising the stent surface with plasma proteins such as albumin, gamma globulins or phospholipids, which causes the skipping of certain phases in the proteinaceous - thrombotic and cellular - response.

The above mentioned coatings have an anti-proliferative effect; the growth velocity is inhibited in order to prevent thrombosis or restenosis.

A coating consisting of an extract of an extracellular biologically active basement membrane composition, derived for instance from the Engelbreth-Holm-Swarm tumor has been described in US patent 4,829,000. However, it appears that this membrane is not suitable as a stent coating because it forms a thick shell on the stent surface.
A. Schneider et al, J. Vasc. Surgery 15, 649 (1992) describe the application of a coating consisting of fibronectin whereupon bovine corneal endothelial cells grow. The cells were said to produce an extracellular matrix, and removed after 14 days. Thus coated polymer material was seeded with bovine aortic endothelial cells.
However, also this coating has a proliferative effect, viz. a large growth velocity of the cells but a big chance on thrombosis too. Moreover, this procedure is complicated and may suffer from bio-contamination.

The present invention aims to provide for an intraluminal device according to the preamble which after implantation in a body adds to an improvement of the process of vascular healing and which prevents the formation of thrombosis, excessive tissue growth, inflammation and vascular dysfunction.

In order to achieve this the present invention is directed to an intraluminal device according to the preamble, which is characterised in that the coating comprises:

50-97% heparan sulfate;

1-20% laminin;

0.2-15% type IV collagen.

By providing an intraluminal device with a coating of the above specified composition a suitable substrate is provided on which endothelial cells can adhere. During the growth the endothelial cells create their own matrix upon which to grow and remain attached. Given that the normal endothelium is non-thrombogenic, providing a coating suitable for endothelial cell growth can shorten the period during which a patient is at risk of thrombotic occlusion.

All of the above components are also naturally present in the basement membrane of the blood vessel wall and are suitable for endothelial cell adhesion, growth and differentiation. Laminin can contribute to the binding properties of the coating to, for example DNA and RNA in gene therapy. Furthermore, type IV collagen adds to an improved attachment of the coating on the intraluminal device as well as a better attachment of the endothelial cells on the coated surface of the intraluminal device. Finally, the heparan sulfate is an important component as it has an effective anti-thrombogenic effect.

The coating according to the present invention provides a surface which is higher up in the natural healing cycle. The coating provides a fertile rich environment for endothelial cells and regulated thrombus formation. Thus, contrary to the coatings according to the prior art, the coating according to the present invention has a proliferative effect. As a result of the proliferative effect, the vascular wound healing is stimulated thereby decreasing the period during which thrombosis can occur and excessive tissue growth.

In a particular embodiment the coating comprises:

75-95% heparan sulfate;

3-10% laminin;

0.5-10% type IV collagen.

In a further preferred embodiment the coating comprises entactin and nidogen.

Said compounds add to the structural integrity of the coating and also improve the attachment of the - endothelial - cells to the intraluminal device coating.

In another advantageous embodiment the coating furthermore comprises a growth factor.

Growth factors in general stimulate the growth of - for example, endothelial - cells and therefore enhance the proliferative effect.

Preferably, the growth factor is chosen from the group consisting of bFGF, IGF, TGF-β and VEGF.

The different growth factors bFGF (basic fibroblast growth factor), IGF (insuline like growth factor), TGF-β (transforming growth factor-β), and VEGF (vascular endothelial growth factor) all add to the growth of specific components.

In order to prevent any risk of infection, the coating advantageously comprises an antibiotic.

In order to have an optimal effect the antibiotic should be a broad spectrum antibiotic, such as gentamycine.

In a preferred embodiment the coating of the intraluminal device according to the present invention comprises vitronectin.

Vitronectin offers a good basis for cell attachment; moreover it binds abciximab, GP 2b/3b inhibitor (ReoPro®) which is a compound with a known anti-thrombotic effect. By incorporating vitronectin in the intraluminal device coating and administering to a patient ReoPro® or other drugs that bind to vitronectin, thrombosis is even further prevented.

In a particular preferred embodiment of the intraluminal device according to the present invention, the coating comprises:

85-95% heparan sulfate;
5-6% laminin;
3-4% type IV collagen;
0.5-1.5% entactin and nidogen;
0.001-1% growth factors;
0.001-1% antibiotic.

In a preferred embodiment the intraluminal device comprises a vascular prosthesis such as a stent or a graft. The stent as well as the graft can be prepared from different materials known to the person skilled in the art.

The coated intraluminal device according to the present invention can furthermore be used as a basis for therapies such as, for example, drug delivery and gene therapy. Drugs can be bound to the coating such that the release thereof is controlled. As mentioned in the above, the presence of laminin in the coating improves the bonds which are desired and required in gene therapy. It is also possible to provide for one or more radioactive molecules in the coating in order to inhibit cell growth, if desired.

The present invention also relates to a coating suitable for application to an intraluminal device according to the present invention.

It will be clear that such coating may also be used on other substrates which can be implanted in a body.

The present invention also relates to a method for preparing an intraluminal device according to the above invention, comprising the steps of:

- providing an intraluminal device such as a wire of stainless steel, tantalum or polytetrafluoroethylene (PTFE) for implantation in a body;
- preparing a composition, comprising, in about 50 mg/ml solvent:

50-97% heparan sulfate;
1-20% laminin;
0.2-15% type IV collagen;
the solvent being a suitable buffer or water;
- dipping the intraluminal device in the composition; and
- drying the dipped intraluminal device.

The method as such is very simple and easy to perform and moreover is not time-consuming. The drying step can take place with or without heated or forced air drying.

Preferred embodiments of the method according to the present invention are those wherein the compositions to be prepared furthermore comprise one or more of the group consisting of a growth factor such as bFGF, IGF, TGF-β and VEGF, an antibiotic and vitronectin.

Preferably, a method for preparing a intraluminal device according to the above particular preferred embodiment, comprising the steps of:
- providing an intraluminal device such as a wire of stainless steel, tantalum or polytetrafluoroethylene (PTFE) for implantation in a body;
- preparing a composition, comprising, in about 50 mg/ml solvent:
85-95% heparan sulfate;
5-6% laminin;
3-4% type IV collagen;
0.5-1.5% entactin and nidogen;
0.001-1% growth factors;
0.001-1% antibiotic;
the solvent being a suitable buffer or water;
- dipping the intraluminal device in the composition; and
- drying the dipped intraluminal device.

The present invention will be illustrated by the following, in no way the invention limiting, example.

Example

Helical coil, tantalum coronary stents were coated with the matrigel (n=2) as described in US patent 4,829,000 or with a coating according to the present invention (n=2).
The stents were percutaneously implanted using sterile techniques in coronary arteries of farm-bred Yorkshire swines (ca. 30 kg) in such a way that one of each stent was placed per animal.
One of the two matrigel coated stents showed thrombotic occlusion within one week. The stent coated according to the present invention in the same animal was in a good condition at autopsie. Mean neointimal thickness at one week was 24 µm (range 20 - 44 µm) in the matrigel coated stent and 14 µm (range 10 - 24 µm) in the stent coated according to the present invention.
In vitro platelet aggregation was measured in fresh, heparinized blood by measuring the impedance between the two electrodes. For this study the electrodes itself were coated with either matrigel or with the coating according to the present invention. Matrigel coating caused a decrease in impedance of 40 % compared to a bare electrode. The coating with a composition according to the present invention caused a decrease of 60 %. This implies a reduction of platelet aggregation in whole blood of the coating according to the present invention.

Claims

1. Intraluminal device, suitable for implantation in a body, which device is provided with a coating, characterised in that the coating comprises:

50-97% heparan sulfate;

1-20% laminin;

0.2-15% type IV collagen.

2. Intraluminal device according to claim 1, characterised in that the coating comprises:

75-95% heparan sulfate;

3-10% laminin;

0.5-10% type IV collagen.

3. Intraluminal device according to claim 1 or 2, characterised in that the coating comprises entactin and nidogen.

4. Intraluminal device according to claim 1-3, characterised in that the coating furthermore comprises a growth factor.

5. Intraluminal device according to claim 4, charaterised in that the growth factor is chosen from the group consisting of bFGF, IGF, TGF-β and VEGF.

6. Intraluminal device according one or more of the preceding claims, characterised in that the coating comprises an antibiotic.

7. Intraluminal device according to claim 6, characterised in that the antibiotic comprises gentamycine.

8. Intraluminal device according to one or more of the preceding claims, characterised in that the coating comprises vitronectine.

9. Intraluminal device according to one or more of the preceding claims, characterised in that the coating comprises:

85-95% heparan sulfate;

5-6% laminin,;

3-4% type IV collagen;

0.5-1.5% entactin and nidogen;

0.001-1% growth factors;

0.001-1% antibiotic.

10. Intraluminal device according to one or more of the preceding claims, characterised in that the prosthesis comprises a stent or a graft.

11. Coating suitable for a intraluminal device according to one or more of the preceding claims 1-10.

12. Method for preparing a intraluminal device according to one or more of the claims 1-10, comprising the steps of:

- providing a intraluminal device for implantation in a body;
- preparing a composition, comprising, in about 50 mg/ml solvent:

50-97% heparan sulfate;

1-20% laminin;

0.2-15% type IV collagen;

the solvent being a suitable buffer or water;

- dipping the intraluminal device in the composition; and
- drying the dipped intraluminal device.

13. Method according to claim 12, characterised in that the composition comprises entactin and nidogen.

14. Method according to claim 12 or 13, characterised in that the composition furthermore comprises a growth factor, chosen from the group consisting of bFGF, IGF, TGF-β and VEGF.

15. Method according to one or more of claims 12-14, characterised in that the composition comprises an antibiotic.

16. Method according to one or more of claims 12-15, characterised in that the composition comprises vitronectin.

17. Method according to one or more of the claims 12-16, characterised in that the composition comprises:

85-95% heparan sulfate;
5-6% laminin;
3-4% type IV collagen;
0.5-1.5% entactin and nidogen;
0.001-1% growth factors;
0.001-1% antibiotic.

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
5 April 2001 (05.04.2001)

PCT

(10) International Publication Number
WO 01/23016 A1

(51) International Patent Classification[7]: A61L 33/10, 33/06, 27/34, 31/10

(21) International Application Number: PCT/EP00/09658

(22) International Filing Date: 2 October 2000 (02.10.2000)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
99203203.7 30 September 1999 (30.09.1999) EP

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(81) Designated States *(national)*: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW.

(84) Designated States *(regional)*: ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

Published:
— *With international search report.*

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

WO 01/23016 A1

(54) Title: INTRALUMINAL DEVICE, COATING FOR SUCH DEVICE, AND METHOD FOR PREPARING SAID DEVICE

(57) Abstract: Disclosed is an intraluminal device, suitable for implantation in a body. Said intraluminal device is provided with a coating which comprises: 50-97% heparan sulfate; 1-20% laminin; 0.2-15% type IV collagen. Furthermore a coating is disclosed, which coating is suitable for the above mentioned device, as well as a method for preparing such device, comprising the steps of: providing an intraluminal device for implantation in a body; preparing a composition, comprising, in about 50 mg/ml solvent: 50-97% heparan sulfate; 1-20% laminin; 0.2-15% type IV collagen; the solvent being a suitable buffer or water; dipping the intraluminal device in the composition; and drying the dipped intraluminal device.

Attorney Docket No. 2005-1001

COMBINED DECLARATION AND POWER OF ATTORNEY

As a below named inventor, I hereby declare that

My residence, post office address and citizenship are as stated below next to my name.

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled: INTRALUMINAL DEVICE, COATING FOR SUCH DEVICE, AND METHOD FOR PREPARING SAID DEVICE

the specification of which: *(check one)*

REGULAR OR DESIGN APPLICATION

☐ is attached hereto.

☐ was filed on _____ as application Serial No. _____

and was amended on _____ (if applicable).

PCT FILED APPLICATION ENTERING NATIONAL STAGE

☒ was described and claimed in International application No. PCT/EP00/09658 filed on October 2, 2000 and as amended on _____(if any).

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations, §1.56.

PRIORITY CLAIM

I hereby claim foreign priority benefits under 35 USC 119 of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed.

PRIOR FOREIGN APPLICATION(S)

Country	Application Number	Date of Filing (day, month, year)	Priority Claimed
Europe	99203203.7	30 September 1999	Yes

I hereby claim the benefit under Title 35, United States Code §119(e) of any United States provisional patent application(s) listed below:

Application No.	Filing Date	Status (patented, pending abandoned)

(Complete this part only if this is a continuing application.)

I hereby claim the benefit under 35 USC 120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of 35 USC 112, I acknowledge the duty to disclose information which is material to patentability as defined in Title 37 Code of Federal Regulations §1.56 which became available between the filing date of the prior application and the national or PCT international filing date of this application:

Application No.	Filing Date	Status (patented, pending abandoned)

Docket No. 2005-1001

POWER OF ATTORNEY

The undersigned hereby authorizes the U.S. attorney or agent named herein to accept and follow instructions from **LIOC** as to any action to be taken in the Patent and Trademark Office regarding this application without direct communication between the U.S. attorney or agent and the undersigned. In the event of a change in the persons from whom instructions may be taken, the U.S. attorney or agent named herein will be so notified by the undersigned.

As a named inventor, I hereby appoint the registered patent attorneys represented by Customer No. **000466** to prosecute this application and transact all business in the Patent and Trademark Office connected therewith, including: **Robert J. PATCH, Reg. No. 17,355, Andrew J. PATCH, Reg. No. 32,925, Robert F. HARGEST, Reg. No. 25,590, Benoît CASTEL, Reg. No. 35,041, Thomas W. PERKINS, Reg. No. 33,027, Roland E. LONG, Jr., Reg. No. 41,949, and Eric JENSEN, Reg. No. 37,855,**

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I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

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